

REMARKS/ARGUMENTS

Claims 29, 32, 34, 35, 39, 41, 42, and 45-48 have been amended. No claims have been added. Claim 33 has been canceled without prejudice. The foregoing amendment and the following arguments are provided to impart precision to the claims, by more particularly pointing out the invention, rather than to avoid prior art.

Objections

The Examiner stated that the originally submitted title of the invention is non-descriptive. Accordingly, the Applicant has revised the title to read "PREDICATE PREDICTION BASED ON A PREDICTED PREDICATE VALUE." Therefore, the Applicant respectfully requests withdrawal of the objection.

35 U.S.C. § 102(b) Rejections

Examiner rejected claims 39, 42, and 44 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,903,750 (hereinafter "Yeh"). The Applicants respectfully disagree, and submit the following arguments in defense of their position.

Yeh is directed to branch prediction (Yeh, Title; Abstract; column 2, lines 23-38). Those with ordinary skill in the art understand that a branch instruction is an instruction that when taken, causes the instruction to jump to a new location in memory. In contrast, a predicated instruction conditionally executes according to an associated predicate, but the execution of the instruction does not jump memory locations. Consequently, branch instructions and predicated

instructions are fundamentally different in the computer processing arts. Thus, when Ye describes “predicate prediction” in Figure 2A as either “Taken” or “Not Taken,” the prediction is directed at a branch instruction and not a predicated instruction (Yeh, column 7, lines 13-59).

In independent claim 39, the Applicants claim “a predicate history table to store historical information associated with a predicate *of a predicated instruction*; and [¶] a predicted predicate value (PPV) calculator to calculate a PPV *for the predicated instruction*” (emphasis added). The predicate history table, predicted predicate value, and PPV calculator are all directed to predicated instructions. Because Yeh only discloses a system that operates on branch instructions, and branch instructions are fundamentally different than predicated instructions, Yeh fails to disclose each and every element as claimed in claim 39.

Furthermore, the applicants claim “a PPV for the predicated instruction, *the PPV having a value of TRUE or FALSE*” in amended claim 39 (emphasis added). Yeh describes predicting the outcome of a branch instruction, the prediction having a value of “Taken” or “Not Taken” (Yeh, column 7, lines 13-58). Since a predicate value of “TRUE” or “FALSE” is not the same as a predicated branch value of “Taken” or “Not Taken”, and Yeh fails to describe predicting a value of “TRUE” or “FALSE”, Yeh fails to describe each and every element as claimed in claim 39.

The Applicants respectfully submit that independent claim 39 is not anticipated under 35 U.S.C. § 102(b) by Yeh. Since claims 42 and 44 depend on claim 39, and contain features that further limit claim 39, claims 42 and 44 are also not anticipated by Yeh under 35 U.S.C. § 102(b) for at least the same reasons discussed above with respect to claim 39.

35 U.S.C. § 103(a) Rejections

Examiner rejected claims 29-34 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,903,750 (hereinafter “Yeh”) in view of U.S. Patent 6,009,512 (hereinafter “Christie”). The Applicants respectfully disagree, and submit the following arguments in defense of their position.

The Applicants submit that Yeh is directed to branch prediction for branch instructions and not predicate prediction for predicated instructions, as discussed above. Furthermore, Yeh fails to describe predicting a predicate value of either “TRUE” or “FALSE”, as discussed above. Thus, Yeh fails to disclose each and every limitation of the invention as claimed in claim 29.

The Examiner argued that Christie describes a COMPARE instruction to determine an actual predicate value (APV) for the predicate (Office Action, page 4, paragraph 11). However, for Yeh and Christie to render the Applicants’ invention obvious under 35 U.S.C. § 103(a), Yeh and Christie must disclose or suggest each and every element of the Applicants’ invention as claimed in claim 29. Christie discloses the normal operation of a predicated instruction (Christie, column 4, lines 25-35). However, Christie fails to suggest or disclose, for example, “determining a predicted predicate value (PPV) for a predicate of a predicated instruction, the PPV having a value of TRUE or FALSE” as claimed in amended claim 29.

Since both Christie and Yeh fail to suggest or disclose each and every limitation as claimed in claim 29, their combination also fails to suggest or disclose each and every limitation of claim 29.

Therefore, claim 29 is nonobvious under 35 U.S.C. § 103(a) over Yeh in view of Christie for at least the reasons discussed above. Because claims 31-34 depend, directly or indirectly, on claim 29 and include features that further limit

claim 29, claims 31-34 are also nonobvious under 35 U.S.C. § 103(a) over Yeh in view of Christie for at least the same reasons.

Examiner rejected claim 30 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,903,750 (hereinafter “Yeh”) in view of U.S. Patent 6,009,512 (hereinafter “Christie”) as applied to claim 29 above, and further in view of Heuring and Jordan’s Computer Systems Design and Architecture (hereinafter “Heuring”).

As discussed above, Yeh fails to disclose or suggest each and every limitation of the applicants invention as claimed in claim 29. Furthermore, the Examiner admitted that Yeh fails to disclose “executing the predicated instruction after flushing the pipeline,” as claimed in claim 30.

The Examiner argued that Heuring discloses executing the predicated instruction after flushing the pipeline (Office Action, page 5, paragraph 17). However, as discussed above with respect to claim 29, Yeh fails to disclose “determining a predicted predicate value (PPV) for a predicate of a predicated instruction, the PPV having a value of TRUE or FALSE.” Since Heuring also fails to disclose “determining a predicted predicate value (PPV) for a predicate of a predicated instruction, the PPV having a value of TRUE or FALSE”, neither Yeh nor Heuring, alone or in combination disclose or suggest every element of the invention as claimed in claim 30, with respect to claim 29.

Therefore, claim 30 is nonobvious under 35 U.S.C. § 103(a) over Yeh in view of Heuring, for at least the reasons discussed above.

Examiner rejected claims 35-38 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,903,750 (hereinafter “Yeh”) in view of Heuring and Jordan’s Computer Systems Design and Architecture (hereinafter “Heuring”).

Because independent claim 35 contains similar features and language to independent claim 39, and Yeh failed to disclose each and every feature as claimed in claim 39, as discussed above, Yeh also fails to disclose each and every limitation of claim 35. Furthermore, the Examiner used Heuring to describe the use of a register file and not to describe the features of claim 39, with respect to claim 35, that Yeh failed to describe. Therefore, when taken alone or in combination, Yeh and Heuring fail to disclose or suggest each and every limitation as claimed in claim 35.

Thus, claim 35 is nonobvious under 35 U.S.C. § 103(a) over Yeh in view of Heuring, for at least the reasons discussed above. Because claims 36-38 contain features that further limit independent claim 35, claims 36-38 are also nonobvious under 35 U.S.C. § 103(a) for at least the reasons discussed above.

Examiner rejected claims 40 and 41 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,903,750 (hereinafter “Yeh”) in view of U.S. Patent 5,857,104 (hereinafter “Natarajan”).

As discussed above with respect to claim 39, Yeh is directed to branch instructions and fails to disclose “a predicted predicate value (PPV) calculator to calculate a PPV for the predicated instruction, the PPV having a value of TRUE or FALSE.” Similarly, Natarjan is direct to branch instruction and not predicate prediction. Since claims 40 and 41 contain limitations directed to predicate prediction, Yeh and Natarjan, alone or in combination, fail to disclose each and every element of claims 40 and 41, with respect to claim 39. Therefore, claims 40 and 41 are nonobvious under 35 U.S.C. § 103(a) over Yeh in view of Natarjan for at least the reasons discussed above.

Examiner rejected claims 45-50 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,857,104 (hereinafter “Natarajan”) in view of U.S.

Patent 5,903,750 (hereinafter "Yeh"). Yeh and Natarjan are directed to branch prediction and not predicate prediction, as discussed above. Independent claim 45, which contains limitations similar to allowable claim 39, is directed to predicate prediction for a "predicated instruction." Therefore, because neither Yeh nor Natarjan, alone or in combination, disclose "a predicted predicate value (PPV) for the predicate of the predicated instruction, the PPV having a value of TRUE or FALSE" as claimed in claim 45, claim 45 is nonobvious under 35 U.S.C. § 103(a) over Yeh in view of Natarjan. Since claims 46-50 depend, directly or indirectly, on claim 45 and contain features that further limit claim 45, dependent claims 46-50 are also nonobvious under 35 U.S.C. § 103(a).

CONCLUSION

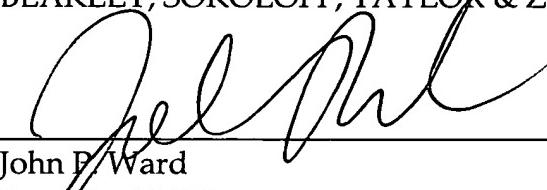
Applicants respectfully submit the present application is in condition for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call John P. Ward at (408) 4720-8300.

Authorization is hereby given to charge our Deposit Account No. 02-2666 for any charges that may be due.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

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